

THURSDAY, APRIL 14, 1887

*A NATURALIST IN SOUTH AMERICA*¹

Notes of a Naturalist in South America. By John Ball, F.R.S., M.R.I.A., &c. (London: Kegan Paul, Trench, and Co., 1887.)

II.

LEAVING Valparaiso, and steering southwards amongst the evergreen islands of the South Chilean Archipelago and Fuegia, Mr. Ball encountered all the disagreeables of those inhospitable and desolate regions, signalled by a fall of the barometer and thermometer, gales of wind, the rolling seas of a tempestuous ocean, fogs, and darkness. And here he observes (and the observation is new to us) that one of the main features of the Andes suffers a great change. The western chain, which runs for 900 miles as an almost continuous range of high land on the coast of Chili, from lat. 40° S. to the Straits of Magellan becomes separated from the range to the east of it by a broad belt of low country including several large lakes. Further south the chain first dips under the ocean, to emerge as the great Island of Chiloe and the Chonos Archipelago, after which it joins the continent again at Cape Tres Montes. Further south is the Gulf of Peñas, forty miles wide, beyond which are the famous channels that lead into the Straits of Magellan. The new geographical features are accompanied by a change of climate, and this again is marked by the appearance of many types of the so-called Antarctic (or rather Fuegian) flora, which may be traced northward from Fuegia to the Mountains of Valdivia, and some few of which types, profiting by the fogs of the desert region of the Andes, straggle northwards into Northern Chili. In Messier's Channel, lat. 50° S., the wild celery of Europe was found, of which Mr. Ball says: "Growing in a region where it is little exposed to sunshine, it has less of the characteristic smell of our wild plant, and the leaves may be eaten raw as salad, or boiled, which is not the case with our plant until the gardener, by heaping soil about the roots, diminishes the pungency of the smell and flavour." "The 5th of June," he goes on to say, "my first day in the channel, will ever remain a bright spot in my memory. Wellington Island, which lay on our right, is over 150 miles in length, a rough mountain range, averaging apparently about 300 feet in height, with a moderately uniform coast-line. On the other hand, the mainland presents a constantly varying outline, indented by numberless coves and several deep narrow sounds running far into the recesses of the Cordillera. In the intermediate channels crowds of islands, some rising to the size of mountains, some mere rocks peeping above the water, present an endless variety of form and outline. That which gives the scenery a unique character is the wealth of vegetation that adorns this seemingly inclement region. From the water's edge to a height which I estimated at 1400 feet, the rugged slopes were covered with an unbroken mantle of evergreen trees and shrubs. Above that height the bare

declivities were clothed with snow, mottled at first by projecting rocks, but evidently lying deep upon the higher ranges. I can find no language to give any impression of the variety of the scenes that followed in quick succession against the bright blue background of a cloudless sky, and lit up by a northern sun that illumined each new prospect as we advanced."

In another passage the scenery is compared to that of the Upper Lake of Killarney, where the evergreen beeches of Fuegia are represented by the arbutus; and where, Mr. Ball might have added, similar climatal features nurture a similar wild variety, profusion, and luxuriance of cryptogamic plants, mosses, ferns, and hepaticæ, and especially broad foliaceous lichens that grow nowhere else in the northern hemisphere in like number and variety. A further similitude between Fuegia and the south-west of Ireland may be traced in the rock-girt deep sounds that run far into the land of both, and which harbour a marine vegetation that has perhaps no parallel for variety, luxuriance, and beauty in their respective hemispheres.

The meeting with floating masses of glacier ice in Eyre Sound suggests some excellent remarks on the well-known phenomenon of the depression of the snow-line and of glaciers in this region, as compared with the northern hemisphere. Threading a devious course through the Straits of Magellan, Mr. Ball's enthusiasm rises to a white heat, that warms the land- and sea-scapes of the grim "Land of Desolation." In his eyes, Fuegia's midwinter glows with brilliant hues. It would make Magellan and Del Canot, Narbough and Davis turn in their coffins could they but read Mr. Ball's ecstasies over the features of the countries in which they starved and froze, and where so many of their ill-starred comrades left their bones, after their bodies had endured incredible sufferings. No doubt we may attribute much of the rapture experienced by our traveller to the contrast which the luxuriant vegetation and picturesque scenery of Fuegia presented to the dismal sterility of the Peruvian and North Chilean coasts, and more to the keen interest which he took in the botany of the region. Still, though "Tantus amor florum" may account for a good deal, there is a large measure of beauty in the scenery of Fuegia that he has been the first to analyse, appreciate, and describe with truth and picturesqueness. Take his picture of Mount Sarmiento, for example, a mountain 7000 feet high. "Sole sovereign of these Antarctic solitudes, I know of no other peak that impresses the mind so deeply with a sense of wonder and awe. As seen from the north, the eastern and western faces are almost equally precipitous, and the broad top is jagged by sharp teeth, of which the two outermost—one to the east, the other to the west—present summits of apparently equal height." Speculating on its geological age, he considers it evident that it is not of volcanic origin, for that no volcanic rock can retain slopes so nearly approaching the vertical. He regards it as a portion of the original rock-skeleton that formed the axis of the Andean Chain during the long ages that preceded the great volcanic outbursts that have covered over the framework of the western side of South America, and that in the course of upheaval its flanks have been carved by marine action to the nearly vertical form which impresses the beholder.

¹ Continued from p. 537.

After a short stay at Sandy Point, a Chilian settlement at the eastern mouth of the Straits, Mr. Ball proceeded to Monte Video and Buenos Ayres, from whence he ascended the Uruguay River; and, passing Fray Bentos, the great factory of "Liebig's Extract of Beef," finally reached Paysandu, equally familiar to English house-keepers for its preserved tongues. This digression gave him a fair view of the aspect of the flora of a great extent of the Argentine Confederation, which, with its Pampas, Salinas, and riparian vegetation differs wholly from that of all the regions he had hitherto visited. For the Argentine Confederation he proposes the term "Argentaria," a good one, which will, we hope, be acceptable to biologists, and to geographers too.

Santos, in South Brazil, was the next point visited, and from there Mr. Ball took the rail to Sto. Paolo, and thence on to Rio de Janeiro. Here he is upon ground familiar to naturalists, and we need only allude to the singular speculation to which his observations on the geology of that part of Brazil, and his reading of the observations of others on the same subject, have given birth. After dwelling on the enormous area of Brazil occupied exclusively by granite and gneiss, and the extent and depth of the deposits of the disintegrated materials formed out of the same matrix, including 200,000 square miles of the plateau of Brazil, the Argentine Pampas, and Paraguay, he goes on to say: "To my mind the conclusion is irresistible that ancient Brazil was one of the greatest mountain regions of the earth, and that its summits may very probably have exceeded in height any now existing in the world." And it is these mountains which he regards as the probable birthplace of the chief types of the phanerogamous vegetation of South America. A few peculiar types, indeed, may have been developed in the Andes, but not such as have stamped their features on the vegetation of the continent. Mr. Ball further correlates this speculation with another as bold, which he gave to the Geographical Society in 1879 (Proceedings, p. 464), and which is, that the chief types of existing flowering-plants originated in the higher mountain regions of the globe "at a period when the proportion of carbonic acid gas present in the atmosphere was very much greater than it has been since the deposition of the Coal-measures." To discuss these novel ideas would be out of place here; but we must, in justice to our author's candour, add his avowal that he regards them "as having no claim to rank as more than probable conjectures, but that, as they rest on some positive basis of facts, they may be serviceable to the progress of science by stimulating inquiry."

It remains to add that the work concludes with two appendices—one "on the fall of temperature in ascending to heights above the sea-level," which is a model of painstaking research into the methods and observations hitherto adopted, but which leaves this complex subject no further advanced; the other, "on Mr. Croll's theory of secular changes of the earth's climate," is a really valuable contribution to that fascinating inquiry. And here we take leave of Mr. Ball, congratulating him heartily on having added to our library of South American travels a volume that well deserves a corner of the shelf that contains those of Humboldt, Darwin, and Bates.

PALÆOLITHIC MAN IN NORTH-WEST MIDDLESEX

Palæolithic Man in North-West Middlesex. By J. A. Brown. (London: Macmillan and Co, 1887.)

THIS work has two faults by no means peculiar to itself, but which it shares with many books on science.

One of these is the large amount of introductory matter that bars the way to the special subject of study. Thus we do not get into Middlesex until reaching page 42, and then we quit it again after p. 120, to return at p. 185. Certainly, our author shows us how much trouble he has taken in looking up authorities on palæolithic and savage man in general; but he should remember that some folk don't like their whisky to be over-watered.

The second fault one must allude to with sorrow. Why is it that so many scientific scribes have such a weakness for slipshod English? Is it that they feel the advance of science to be so rapid that their works will be passed by in a few years, as out of date, so that it is not worth while to cultivate style, and grammar is hardly essential? Or is it that they expect the bad language of to-day to be the good language of the future, by an evil process of evolution, the survival of the unfittest? Let Prof. Lankester note this as a possible case of degeneration.

One cannot resist giving some examples. On p. 11 we are told that "abundant traces of man in the Neolithic Age are found on the surface of the ground, which may be picked up on ploughed fields." The surface of the ground is usually a good deal picked up on ploughed fields; but of course that is not what is meant. An author who has written much on prehistoric man might perhaps be justified in bringing an action for libel for the remark on p. 67 that "the fauna—as Prof. Dawkins says—is the same, and are referable to the same geological horizon." On p. 90 it is said of a certain tool that "it certainly has the appearance of greater antiquity as an implement, than do a very large proportion," &c. In the middle of p. 94 three successive sentences begin with "It," but that awkward little word in two cases stands for one particular implement, whilst in the third the general type to which that implement belongs must be referred to, as the particular "it" cannot have been found, in these unmiraculous times, in three distinct places: at Ealing, in Kent, and in Surrey. At p. 112 the singular "No. 131" is shortly followed by the plural "They," the latter being meant to refer to other numbers as well.

Having said this much as to things in general, we may say that Mr. Brown's book is a praiseworthy account of a particular district, and that it would not be amiss if other districts had as careful an observer in their midst, eager to see every section, and to record every find. It is a work that London antiquaries and geologists should possess.

Up to the time when Dr. Evans's great work on stone implements was published, but few specimens of worked flints had been recorded from the metropolitan district; but in the same year, Colonel Lane-Fox (now General Pitt-Rivers) recorded the finding of a large number in the